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1939

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CHRONICLE OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

***The radio communiqués of the International Institute of Agriculture will be transmitted between 3 and 3.10 p. m. on the following days: Thursday,* English *and* German; *Friday,* Spanish; *Tuesday,* Italian *and* French.**

They will be broadcast from Rome II (245.5 m.) and Rome 2 RO 4 (25.4 m.).

The hour of broadcasts is Central European Time, which is one hour ahead of Greenwich Mean Time, and 5 hours ahead of Eastern Standard Time in the United States.

Work of the International Institute of Agriculture. — The October meeting of the Permanent Committee, which was attended by the Delegate of a large number of Member States marked, as usual, the resumption of full activity in the Institute after the summer holiday period. The brief summary of the Committee's proceedings given below suffices to show that, even in the present circumstances, the Institute continues to work on the tasks assigned to it. In his opening speech the President of the Institute said: "the International Institute of Agriculture, set up at the beginning of the century by an act of faith in the solidarity of all nations in the field of agriculture, has already demonstrated, during the period 1914-1918, that this solidarity can be maintained even in the midst of the most serious conflagration. It proved its vitality then and it is ready to prove it again, if it can count on the confidence of Governments, which has maintained it up to the present".

Although some officials have left on account of mobilisation, the work of the Institute is continuing and its publications appear regularly.

The Institute knows that it can count on the support and collaboration of Governments even in this critical period and it is confident that its efforts will be appreciated, not only by the Member States, but also by all who are interested in agricultural and economic problems.

Permanent Committee of the International Institute of Agriculture. — The Permanent Committee of the Institute held its usual autumn meeting on October 12 and 13. The Delegates of the following States attended:— Argentina, Bulgaria, Canada, Denmark, France, Algeria, French West Africa, Indochina, Madagascar, Morocco, Tunisia, Germany, Greece, Hungary, Iran, Ireland, Italy, Italian Aegean Islands, Italian East Africa, Libya, Japan, Latvia, Netherlands, Netherlands Indies, Paraguay, Peru, Spain, Switzerland, Union of South Africa, United Kingdom of Great Britain and Northern Ireland, United States of America, Hawaii, Philipines Islands, Puerto Rico, Virgin Islands, Yugoslavia.

The Committee held four sittings and discussed an agenda including about fifteen administrative, financial and technical questions relating to the present and future activity of the Institute. Two of these questions, namely, the *Preparation of the XVth General Assembly of the Institute* and *the Results of the second meeting of the Committee of the International Forestry Centre* are refered to below.

The Permanent Committee examines at every meeting the quarterly report of the Committee appointed by it to study the resolutions of international con-

gresses of interest to agriculture. The Permanent Committee and the Bureau of the Institute thus follow the multifarious activities of international agricultural life, contribute to them, extract all useful information and thereby keep in touch with agricultural circles in all parts of the world.

Henceforward the Institute, in accordance with a practice which it has already adopted on some occasions, will prepare for all Congresses, particularly for those in which it takes part, general reports on its work on the subjects touched on in the agenda. This will enable the Institute to acquaint the circles interested with its work in any particular field and allow the Congresses to avoid overlapping in the preparation of their programmes.

XVth General Assembly of the International Institute of Agriculture. — The XVth General Assembly of the Institute will be held in Rome in May 1940. The opening day will be fixed by the Permanent Committee at its December meeting.

The questions already included in the agenda of this Assembly are as follows:— (1) Questions of Procedure; (2) Report of the President; (3) Report of the Secretary General; (4) Subsistence farming: a study of measures designed to improve the status of the farm population in the low income groups (Proposal and Report of the United States Government); (6) Soil conservation; (7) Evolution of succession rights in agriculture.

* * *

Other questions dealt with by the Bureaux of the Institute are the subject of special sections and appendices of the Report of the Secretary General. These include the following:— *Legislative protection of new plant varieties, Progress of the Second World Agricultural Census, Intensification of the work of the International Institute of Agriculture in horticulture, Work of the Library in the field of documentation, bibliography, etc., International exchange of information on agricultural progress.*

It will be seen that, in addition to reports on the work of the Institute during the two years preceding this Assembly, the agenda includes three important scientific, juridical and economic and social questions (*Soil conservation, Evolution of succession rights in agriculture* and *Subsistence farming: a study of measures designed to improve the status of the farm population in the low income groups.*

The last question was put on the agenda of the General Assembly at the request of the United States Government which will present a report.

The agenda reproduced above will be supplemented by any other items which may be proposed by Governments.

Second Meeting of the Committee of the International Forestry Centre. — The Committee of the International Forestry Centre at Berlin, which works within the framework of the International Institute of Agriculture, held its second meeting at Rome on October 9 and 10. Delegates of most of the Member States of the Centre were present. The agenda of this meeting was given in the October Chronicle.

The Committee dealt with certain administrative and staff questions and made some arrangements affecting the Library of the Centre.

Three of the decisions of the Committee were submitted to the Permanent Committee of the International Institute of Agriculture at its October meeting in accordance with the Statutes of the Centre. These decisions, which were approved by the Permanent Committee, related to (1) the revised budget for 1939, (2) financial measures for the period January 1-March 31, 1940 and (3) the Centre's programme of work for 1940.

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

1939 No. 11

DISCOVERIES AND CURRENT EVENTS *

Germany: First Records of the Colorado Beetle in 1939 †

The Colorado beetle (*Leptinotarsa decemlineata*) was reported on April 7, 1939 at Dossenheim in the Heidelberg district; this is the first occurrence of the Colorado beetle in 1939. Further reports were received from the districts of Dortmund (April 10), Saarbrücken (April 23), Aachen (May 5), Worms (May 9) and from the Obertaunuskreis (May 13). Egg-laying began towards the end of May and at the beginning of June. The first larvae appeared during the first week of June, the first nymphs on June 25.

Up to mid-August, 1939, the Colorado beetle was reported in 9800 localities in 2250 different communes. The majority of the communes attacked lie within the zone already invaded in 1938. It is of interest to note that the Colorado beetle has not reappeared in all the communes infested last year, some of these communes being quite free from attack this year.

The communes attacked for the first time in 1939 are reported in detail as follows: Baden (3 districts with 20 communes invaded), Bavaria (8 districts with communes invaded), Prussia (20 districts with 31 communes invaded), Wurtemberg (4 districts with 21 communes invaded).

Argentine Republic: Invasion of the South American Locust §

At the beginning of 1939, the invasion of the South American locust (*Schistocerca paranensis*) was in full swing, the insect being in the stage of 'saltona' (nymph) and infesting the following provinces and territories:—

Province of Santa Fé:— Departments of San Justo, General Obligado, Vera, Garay, Las Colonias, Capital, San Javier, San Jerónimo, Belgano, Caseros, Iriondo and San Lorenzo.

Province of Córdoba:— Departments of Río Primero, Río Segundo, Punilla, San Justo, Colón, Capital, Totoral, Santa Maria, Río Cuarto, Calamuchita, Juarez Celman and General Roca.

* Under this and the third heading the countries are arranged in French alphabetical order.

† Communication from the German Institute of Biology, Berlin-Dahlem, official correspondent of the Institute.

§ Communication from Mr. JUAN F. TOMASELLO, Agricultural Engineer, Director of the 'Defensa Agrícola', Ministry of Agriculture, Buenos Aires, Argentine Republic.

Province of Corrientes:— Departments of San Cosme, General Paz, Saladas, Bella Vista, San Roque, Lavalle, Goya, Esquina and Mburucuyá.

Province of Entre Ríos:— Departments of La Paz, Nogoyá, Paraná, Diamante, Victoria, Concordia, Villaguay and San José de Feliciano.

Province of San Luís:— Departments of General Pedernera, Junín, Chacabuco, Coronel Pringles and Capital.

Province of Santiago del Estero: — Departments of Rivadavia, 28 de Marzo, Belgrano and Matará.

Province of Salta: — Department of Orán.

Territory of Chaco: — Departments of Campo del Cielo, Tapenagá, Resistencia, Martínez de Hoz, Río Bermejo, Río Teuco Tobas.

Territory of Formosa: — Departments of Pirané, Patiño and Laishi.

At the same time, the transformation of the nymphs into adults intensified in the provinces of Santa Fé (northern and central areas); San Luís (departments of General Pedernera, Capital and Coronel Pringles); Córdoba (departments of Calamuchita and Río Cuarto) and Corrientes (department of Mburucuyá).

These adults, though not collecting in large swarms followed a northerly and north-westerly direction; no damage was caused.

As egg-laying was late in some districts, towards the end of the season, hatching of 'mosquitas' way observed in the south of the provinces of Santa Fé (departments of General Lopez and Villa Constitución), Entre Ríos (departments of Victoria, Gualeguay and Rosario Tala); Córdoba (departments of Río Cuatro, Roque Saenz Peña, Tercero Abajo, Marcos Juarez and Unión), Mendoza (department of General Alvear) and Santiago del Estero (department of Moreno).

Towards the end of January, 1939, the area infested by 'mosquitas' and 'saltonas' decreased and normal-sized swarms invaded the provinces of Santiago del Estero, Córdoba, San Luís and Catamarca.

On the 27th of the same month, the invasion of flyers in Catamarca Province spread to the departments of La Paz and Ancasti as a swarm from the North began laying successively in the districts of Mogote and San Fernando (department of Ancasti), San Antonio and Quirós covering an area of 200 to 100 km² respectively.

During the month of February, the locusts continued swarming and were also observed in the provinces of Salta, Tucumán, Mendoza, La Rioja and in the Territory of Chaco. In the province of Salta, further egg-laying was noted over an area of 750 km² and over 2000 km² in the province of Córdoba.

In the Territory of Chaco, locusts caused damage to young cotton crops as it was impossible at that period of the year to carry out any control measures owing to the high temperature.

Destruction of *Schistocerca paranensis* during the period January 1 - May 31, 1939.

Provinces et Territories	Spraying								Area turned over in order to destroy eggs	Flame-throwers, barriers, etc.			
	'Mosquita' (larva)		'Saltona' (nymph)		'Saltona' and adults		Adults			'Mosquita' (larva)		'Saltona' (nymph)	
	Ha.	Kg.	Ha.	Kg.	Ha.	Kg.	Ha.	Kg.	Ha.	Ha.	Kg.	Ha.	Kg.
Santa Fé	—	—	354½	3,776,500	—	—	—	—	364	242	—	15,626	12,791,767
Córdoba	—	—	3,657	25,823,000	—	—	—	—	1,566	179	204,400	5,358	11,854,928
Corrientes	—	—	—	—	—	—	—	—	—	31	—	1,974	1,647,594
Entre Ríos	—	—	—	—	—	—	—	—	45	48	—	1,347	1,788,300
Salta	—	—	1,575	8,887,000	—	—	40	150,000	—	19	27,883	59	73,360
San Luís	—	—	30	135,000	354	2,301,700	—	—	1,894	3,046	3,793,700	341	7,088,500
Santiago del Estero	1	5,225	—	2,000	—	—	—	—	940	—	13,960	—	302,580
Catamarca	—	—	96	1,130,000	—	—	—	—	—	88	—	368	544,200
La Rioja	—	—	—	—	291	2,630,000	2	3,000	44	7	—	18	103,200
Tucumán	860	4,474,000	8,852	86,983,900	—	—	—	—	1,218	1,741	88,800	2,466	637,200
Mendoza	—	—	—	—	—	—	—	—	—	—	—	—	17,341
San Juan	—	—	—	—	—	—	—	—	—	—	—	10	—
Formosa	—	—	—	—	—	—	—	—	581	198	—	347	—
Chaco	—	—	—	—	—	—	—	—	1,603	897	—	778	28,880
Total	861	4,479,225	14,564½	126,737,400	645	4,931,700	42	153,000	8,255	6,496	4,128,743	28,692	36,877,850

SUMMARY

131,216,625 kg. 'saltonas' and 'mosquitas' which had invaded 15,425 1/2 hectares were destroyed by spraying.

5,084,700 kg. of 'saltonas' and 'mosquitas' which had invaded 687 ha. were destroyed by spraying.

By means of flame-throwers, barriers, etc., 41,006,593 kg. of 'mosquitas' and 'saltonas' were destroyed over an area of 35,188 ha.

Rollers, rakes, etc. were used over 8,255 ha. infested by eggs.

GRAND TOTAL

Over 51,300 1/2 ha 177,307,918 kg. of 'mosquitas', 'saltonas' and adults were destroyed.

In the middle of March, swarming became less intense and was only observed in the provinces of Salta, San Luís, Mendoza and in the Territory of Chaco.

On April 19, in the provinces of San Luís and Mendoza, the transformation of the 'saltonas' into adults began.

Towards May 31, 1939, the transformation of hoppers into adults became general in the provinces of Córdoba, La Rioja and Santa. At this period, the locusts began forming swarms which broke up with the fall in temperature, retreating to the wooded areas, only to reappear soon after in the crop fields with the return of more favourable weather.

India and Burma: New Plant Diseases Recorded in 1938 *

(Recorded in the Mycology Section of the Imperial Agricultural Research Institute, New Delhi):—

Saccharum officinarum L. (Sugar cane)	Leaf-spot caused by *Cercospora kopkeii* Krüg. at Jorhat, Assam. This disease has been reported previously from Burma only, but appears to be fairly widely distributed in India.
Cinchona ledgeriana Moens.	Leaf-spot caused by a species of *Gloeosporium*.
Pyrus communis L. (Pear)	Fruit rot caused by a species of *Aspergillus* resembling *A. japonicus* Saito.
Cajanus cajan L. Millsp. (Pigeon pea)	Root-rot due to *Fusarium lateritium* Nees var. *uncinatum* Wr.

(Recorded by J. C. LUTHRA, Professor of Botany, Punjab Agricultural College, Lyallpur):—

Carica papaya L.	Seedling rot caused by a species of *Pythium*.
Solanum tuberosum L. (Potato)	Tuber rot caused by a species of *Fusarium*. The disease is well known in other parts of India.
	Wilt caused by a species of *Fusarium*. The disease is well known in other parts of India.

(Recorded by K. M. THOMAS, Mycologist, Coimbatore, Madras):—

Citrus species (Mandarin oranges)	Leaf fall, fruit rot and gummosis in Wynaad, Malabar, caused by a species of *Phytophthora* (*P. palmivora* Butler).
Capsicum annuum L. (Chilli)	Wilt caused by a species of *Fusarium*.

* Communication from Mr. G. WATTS PADWICK, M. Sc., Ph. D., D. I. C., Imperial Mycologist, Imperial Agricultural Research Institute, New Delhi, India.

Zingiber officinale Rose (Ginger)	Leaf spot caused by a species of *Phyllosticta*.
Nicotiana tabacum L. (Tobacco)	Black-leg of tobacco seedlings caused by bacteria (*Bacillus aroideae* ?).
	' Kroepoeck ', a virus disease, agreeing in symptoms with that caused by *Nicotiana* virus ten of Storey.
Carica papaya L. (Papaya)	' Leaf-curl ', a virus disease, transmitted from plant to plant by grafting.

(Recorded by K. D. BAGCHEE for the Forest Botanist, Forest Research Institute, Dehra Dun, U. P.):—

Shorea robusta Gaertn. (Sal)	Spongy rot caused by *Trametes incerta* (Currey) Cke.
	Zoned rot of the sapwood caused by *Fomes tricolor* (Murr.) Bres.
	Speckled brown heart rot caused by *Fomes fastuosus* Lév.
	Laminated rot of heartwood caused by *Fomes melanoporus* Mont.
	Honeycombed rot of sap- and heartwood caused by *Fomes lamaoensis* (Murr.) Sacc. et Trott.
Acacia catechu Willd.	Root disease caused by a species of *Fusarium* (in Dehra Dun).
Tectona grandis L. (Teak)	Wilt disease caused by a species of *Fusarium*.
Swietenia mahagoni Jack.	Stem disease caused by a species of *Fusarium* (in Madras).
Erythrina indica Lam.	Stem disease caused by a species of *Fusarium* (in Madras).
Ougeinia dalbergioides Benth.	Root- and collar-rot caused by *Ganoderma lucidum* (Leyss) Karst. (in Bombay).
Santalum album L. (Sandalwood)	Leaves and twigs attacked by a species of *Gloeosporium* (in Madras).

(Recorded by S. N. DAS GUPTA, Reader in Botany, University of Lucknow, U. P.):—

Picea morinda L.	Attacked by a species of *Chlorosplenium*.
Colocasia antiquorum Schott.	Wet rot of leaves due to secondary infection by *Blakslea trispora* Thaxter and *Choanephora cucurbitarum* (B. et Rav.) Thaxter and *Ch. infundibulifera* (Currey) Cunningham following infection by *Phytophthora colocasiae* Raciborski.

(Recorded by J. F. DASTUR, Mycologist, Nagpur, C. P.):—

Citrus species (Orange)	A disease caused by a species of *Corticium.*
Guizotia abyssinica Cass. (Niger)	Powdery mildew caused by a species of *Sphaerotheca.*

(Recorded by S. HEDAYETULLAH, Economic Botanist, Dacca, Bengal):—

Punica granatum L. (Pomegranate)	Fruits attacked by a species of *Gloeosporium.*
Psidium guyava L. (Guava)	Young fruits attacked by a species of *Gloeosporium.*

(Recorded by L. N. SETH, Mycologist, Mandalay, Burma):—

Brassica campestris L.	White rust caused by *Albugo candida* (= *Cystopus candidus* [Pers.] Lév.) at Maymyo and Kyaukse. The disease is well known in other parts of India.
Aleurites montana Wilson	Leaf spot caused by a species of *Pestalozzia* at Hsum-Hsai.
Achras sapota L.	Root-rot caused by a species of *Phytophthora.*

(Recorded in published literature):—

Glycine max (L.) Merr. (Soybean)	A bacterial leaf-spot caused by *Phytomonas phaseoli* var. *sojensis.*
Cuminum cyminum Wall. (Cumin)	Blight due to *Alternaria burnsii,* a new species described by Uppal, Patel and Kamat (Bombay).
Piper betle L. (Betel vine)	Downy mildew due to *Oidium piperis,* a new species described by Uppal, Patel and Kamat (Bombay).
Citrus species (Orange)	Storage rot due to *Fusarium moniliforme* Sheld. in Darjeeling and Assam fruits.

Southern Rhodesia: Locust Invasion, 1932-39 *

Monthly Report No. 79. June, 1939.

Very few reports of locusts have been received during June possibly owing to the cold weather inhibiting activity.

* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

Large swarms of the red locust (*Nomadacris septemfasciata*, Serv.) have, however, been observed in the districts of Inyanga, Victoria, Chibi, Balalima-Mangwe.

Solitary fliers of this species were noted in considerable numbers in open grass land on a hill-top in the southern Melsetter district in June.

Monthly Report No. 80. July, 1939.

A few swarms of the red locust have been reported during July, the districts concerned being Lomagundi, Darwin, Mazoe, Mtoko, Melsetter and Gwanda.

The size of the swarms has ranged from 'small' to 'very large' and no definite trend of flight has been evident.

No damage to crops has been reported.

VARIOUS QUESTIONS

Establishment of an International Collection of Cereal Varieties for the Study of the Physiological Races of Rusts *

In Section IV (Plant Production) of the Eighteenth International Congress of Agriculture (Dresden, June, 1939), I proposed establishing an international collection of cereals composed of varieties resistant to rusts and was of the opinion that at first only the European countries should collaborate for this purpose. It was finally decided that the German Institute of Biology at Berlin-Dahlem should carry out a preliminary investigation in order that, at the following International Congress of Agriculture, the necessary information for a more detailed discussion of the question might be available.

As during the course of the discussion several queries were raised regarding the utility of establishing such a collection and particularly with reference to the practical execution of this project, I would like to explain briefly the reasons why such a collection appears to me to be important and how I consider the necessary investigations should be carried out.

Every plant breeder knows the difficulties encountered in establishing cereal varieties resistant to rusts, as the different species of rust have several physiological races.

While in one country a cereal variety may be obtained which is fairly resistant to the local rusts, it is always possible that another race of rust may be brought, by wind, from a neighbouring country and, in coming into contact with the new variety, cause infection.

With a view to preventing this set back, it would be advisable to test new varieties not only for resistance to the local rusts but also to those of the neighbouring countries.

* Communication from Dr. E. Riehm, President of the German Institute of Biology, Berlin-Dahlem, Germany.

For this purpose, the races of rusts of the neighbouring countries could be obtained in order to ascertain the resistance of new varieties to these rusts.

Obviously, these experiments must be carried out only in the greenhouse and never in the field, and at the same time, taking all the necessary precautions to avoid introducing into the country the races obtained elsewhere.

The experiments carried out at the Gliesmarode Sub-Station pertaining to the German Institute of Biology, and also at other stations, have proved that it is possible to obtain a fairly definite degree of resistance in young cereal plants to *Puccinia glumarum*, for example, but that these same plants may acquire during the last stage of development, a degree of resistance differing from that shown in the first stage of growth.

Thus, it was found that some wheat varieties during the course of development showed a more or less pronounced increase in resistance to *P. glumarum*, while other varieties, throughout the different stages of growth, maintained the same degree of susceptibility or resistance. Hence, it is necessary to know not only the resistance of young plant but also that of the full-grown plant ('summer resistance'), and it follows that tests should be made in the field where external factors affect the behaviour of the plant against rusts.

By cultivating in the neighbouring countries the varieties of cereals recognized as being resistant in a certain country, it will be possible to ascertain the reaction of these varieties, during the different stages of their growth, to the physiological races of the rusts found in all the districts where tests are made. This work would be of the highest importance to the breeder of cereal varieties; carried out on an international basis, it would assist considerably towards improving cereal varieties. If, in one country cereal varieties from other countries are required for hybridization work, it is necessary to know in advance in what way these varieties will react to the local races of rusts. Experiments carried out on an international basis, however, would supply the necessary information.

In this international collaboration, it would be preferable, at least in the beginning, to include only the countries of one continent : in our case, for example, the European countries, adding, perhaps the North African territories, as the rusts from these lands can spread to Europe. This international collaboration is all the more pressing in that the results of research work carried out on the question in North America are already available and could be utilized as a basis of the work to be accomplished.

The advantages of these experiments are very evident and were recognized unanimously during the course of the discussion held at Dresden. At the same time, however, attention was called to the difficulties involved in the organization and practical execution of the experiments.

Prof. Roemer of Halle, pointed out that possibly private plant breeders, in view of their international connexions, could test out their new varieties in foreign countries for rust resistance. In this instance, in fact, the private plant breeder has no difficulty. It follows, therefore, that it should also be possible to organize this same work on a basis of international collaboration. With this object in view, the German Institute of Biology is disposed to carry out the mandate entrusted it.

It is first necessary that in each European country where selection work is carried out with a view to increasing the resistance of cereals to rusts, a list be drawn up of the varieties of wheat definitely recognized as being resistant to *P. glumarum* and *P. triticina*, and also of the varieties of barley resistant to *P. glumarum* and *P. simplex*.

In accordance with the wish expressed in Section IV, work will at first be restricted to the species of cereals and to the rusts mentioned. It would be advisable, however, also to take into consideration *P. graminis*. The German Institute of Biology will request, through diplomatic channels, the experts on rusts of other countries to supply the necessary information.

In this way, a collection of barley and wheat varieties will be obtained which will be sent to the countries engaged in rust research.

In the case of varieties which though not on the market are important for hybridization work, the experts of each country should ensure seed production, taking the necessary precautions, and also the annual distribution of new seeds.

It would be useful, with a view to checking the influence of climate and soil, to carry out the experiments in two localities having different climatic conditions An area of two square metres would be allotted to each variety, and each plot would be duplicated.

In regard to the difficulties involved in establishing the method of ascertaining rust attack, these could be avoided by having one person to check the experiments in each country. It is not necessary, however, to specify precisely the gradual variations of rust attack. It is sufficient to know, for example, whether a variety of wheat which in country A is recognized as being resistant to *P. glumarum*, is very susceptible to this fungus in country B. If this is found to be the case, it will be necessary to determine the physiological race of the rust. Investigations on the question will only be possible in the countries having specialists in rust research, with the necessary equipment. If, in any one country these investigations cannot be carried out, it will be necessary to send a sample of the rust in question to the Braunschweig-Gliesmarode Sub-Station for examination.

Even, if at first this international collaboration could only be carried out by a restricted number of countries, the data obtained would be sufficient to form the basis of a report on the question to be presented at the next International Congress of Agriculture.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — According to the seventh Decree of May 4, 1939 relative to the Colorado beetle [*Leptinotarsa decemlineata*] [see this *Bulletin*, 1939, No. 7, pp. 157-159], a different form of permit is now required for consignments of potatoes from the ' control zone '. The new form is issued by the Plant Protection Service and not, as formerly, by the Phytosanitary Protection Service. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang August 1939, 19. Jahrg., Nr. 8, S. 83).

Germany (Bavaria). — By Decree No. III 6128 a 2 of February 23, 1939 relative to the control of the winter moth and the mottled umber moth [*Cheimatobia brumata, Hybernia defoliaria*], the usufructuaries of fruit trees are required to attach trap-bands to all trees, both hard and stone-fruit trees, with the exception of peach trees. All deciduous trees growing among the fruit trees should also be provided with trap-bands. The trap-bands should be applied each year before October 15 and maintained in good condition for at least three months. They should be removed and burnt before March 15 of the following year. That part of the trunk below the trap-band should be treated with a 10 per cent. solution of carbolineum.

If in some special cases there is no probability of attack by these moths, it will not be necessary to apply grease-bands. The authorities in charge may, however, in this instance, request that other control measures shall be carried out, and in particular that the trees shall be treated with preparations recognized as effective by the Plant Protection Service. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1939, Bd. XI, Nr. 5, S. 121-122).

*** A Notification of February 23, 1939 relative to the above-mentioned Decree specifies the regulations for control established by the Minister of Agriculture which must be followed by those concerned.

Besides the trunk, the grease-bands should also encircle the support stakes.

The composition used must be recognized as suitable by the Plant Protection Service.

The composition should not be applied directly to the trunk, which would check the growth of the trees, but carefully applied to a strip of special paper at least 12 cm wide, which will have been tightly placed around the tree by means of twine, so that the female moths will not be able to penetrate under the paper.

Leaves, dead moths, etc., which in covering the grease-band, may prevent it adhering to the trunk should be removed. If necessary, the glue should be renewed. (*Ibid.*, S. 122-123).

*** A Circular of February 23, 1939 relative to the above-mentioned Decree explains to the administrative and competent authorities of the different districts the purpose of the regulations regarding the control of these moths and the measures which should be adopted.

The districts authorities are reminded that it is their function to decide whether an invasion of these moths is probable, and, if necessary, to put into force the measures of control, subsequently suspending them when no longer required.

It is understood that it is useless applying grease-bands to espalier fruit trees.

It is also stated that in special cases, spraying with arsenical preparations may substitute the use of grease-bands. Spraying should be carried out shortly before and immediately after flowering. (*Ibid.*, S. 123-124).

Australia (Western Australia). — On July 6, 1939 the Lieutenant-Governor in Executive Council has been pleased to approve of onion weed (*Asphodelus fistulosus*) being declared a noxious weed within the boundaries of the Geraldton Road Board District. (*Government Gazette of Western Australia*, Perth, July 7, 1939, No. 31, p. 1248).

Bermuda * — The Bermuda Byelaws for the Control of Plant Diseases and Pests made by the Bermuda Board of Agriculture on March 7, 1939 contains changes in legislation affecting the importation of plant material in these Islands. Increased measures to guard against introduction of Japanese beetle (*Popillia japonica*) from the United States of America were considered necessary and the opportunity was taken to revise other aspects of the plant quarantine service.

The main changes are outlined below:—

(1) Cut-flowers and fresh vegetables from the United States of America, formerly imported without restriction, are now subject to inspection on arrival in Bermuda between 1st June and 30th September, and may not be removed from the dock till they have been passed by an agricultural inspector.

(2) All plant material including cut-flowers and fresh vegetables shipped from the United States of America during the period 1st June to 30th September must be accompanied by a certificate to the effect that the shipment has met the requirements of the United States Federal and State Quarantine No. 48 with respect to Japanese beetle [see this *Bulletin*, 1938, No. 9, pp. 195-196].

(3) Importation of citrus plants from the West Indies is no longer prohibited.

The following restrictions, which were already in force under previous legislation, are continued.

(4) No soil, or plants growing in soil, may be imported from any country except under special permit previously obtained from the Director of Agriculture or Plant Pathologist.

(5) No plant material may be brought by aircraft unless under special permit previously obtained from the Director of Agriculture or Plant Pathologist.

(6) Importation of the following is prohibited:—

Bananas, plantains (*Musa* spp.): all parts except the fruit.

Sweet potatoes, morning-glory (*Ipomoea* spp.): plants and tubers from all countries.

Potatoes: from Great Britain and Ireland, Europe, Newfoundland, St. Pierre and Miquelon. Permit required for importation of seed potatoes.

Carrots from all countries.

Corn, broom-corn, sorghums: all parts except loose grain.

True lilies (*Lilium* spp.): all parts except flower and seed.

Daffodils, jonquils, etc. (*Narcissus* spp.). Bulbs may only be imported under special permit and shipper's declaration that they have been adequately treated against bulb-flies and nematodes.

Egypt. — A Ministerial Decree of May 13, 1939 modifying the Ministerial Decree of December 20, 1938 relative to *Pulvinaria psidii* [see this *Bulletin*, 1939, No. 4, p. 84], indicates the following plants as being susceptible to infestation by this scale insect:— *Ficus* spp., guava, mango, tobacco, *Schinus terebinthifolius*, all palms, *Eugenia* spp., mulberry, *Tectona grandis*, *Sanchezia* spp.,

* From a communication of Mr. J. M. WATERSTON, Plant Pathologist, Department of Agriculture, Bermuda.

Ixora polyantha, Mimusops kauki, Wrightia sepiaria, Datura stramonium, Plumeria sericifolia. (*Journal officiel du Gouvernement égyptien*, Le Caire, 18 mai 1939. 66ème année, nº 51, p. 4).

*** By Ministerial Decree of May 29, 1939, *Aspidiotus destructor, Pseudococcus nipae* and *Ps. comstocki* are considered insects harmful to plants which cannot be effectively fumigated. Entry into Egypt of all fruits, plants and parts of plants will be prohibited, if, on inspection by the officers of the Ministry of Agriculture they are found to be infested by one of the aforesaid scale insects.

The import of fruits, plants and parts of plants belonging to the following families:— *Palmaceae, Pandanaceae, Bignoniaceae, Anonaceae, Musaceae, Anacardiaceae, Rubiaceae, Amaryllidaceae, Myrtaceae, Caricaceae* and *Ebenaceae* is prohibited except on special authorization granted by the Minister of Agriculture. (*Ibid.*, 20 juillet 1939, nº 71, p. 15).

United States of America. — The seventeenth revision of the rules and regulations supplemental to Notice of Quarantine No. 48 on account of the Japanese beetle (*Popillia japonica*) [see this *Bulletin*, 1937, No. 11, p. 250] has been approved on February 16, 1939 and is effective on February 20, 1939. (*B. E. P. Q. — Q. 48*, [Washington, D.C.], 1939, 16 pp.).

*** For an additional amount, fiscal year 1939, for carrying out the purposes of and for expenditures authorized under Public Resolution No. 91-75th Congress entitled " Joint resolution to amend the joint resolution entitled ' Joint resolution making funds available for the control of incipient or emergency outbreaks of insect pests or plant diseases, including grasshoppers [*Acrididae*], Mormon crickets [*Anabrus simplex*], and chinch bugs [*Blissus leucopterus*], approved April 6, 1937 ", approved May 9, 1938 [see this *Bulletin*, 1937, No. 8, p. 180, and 1939, No. 3, p. 55], by Public Resolution approved on June 13, 1939 is appropriated, out of any money in the treasury not otherwise appropriated, the sum of $ 1,750,000, to be immediately available and to remain available until December 31, 1939. ([*Public Resolution — No. 22 – 76th Congress*]. [*Chapter 207 – 1st Session*]. [*H. J. Res. 322*]. [Washington, D. C.], 1939, 1 p.).

Italy. — According to Article 11 of the technical-customs Agreement between Italy and Albania, signed at Tirana on May 28, 1939 and enforced by Law No. 1214 of July 6, 1939, the phytosanitary measures applied in these two countries remain in force. The Italian and Albanese Governments, however, will endeavour to standardize the said measures as well as the organization of the relative Services, with a view to preventing any difficulties in trade between the two countries. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 29 agosto 1939, anno 80º, n. 201, pp. 4082-4087).

*** A Ministerial Decree of July 10, 1939 lays down special technical regulations relative to chestnut exports.

For each kilogramme taken from the consignment as a sample, the following allowances (by weight) are made: 6 per cent. for fruits showing modifications

in the pulp due to mould, insects or other causes, and not affecting the outside shell, and 3 per cent. for worm-eaten fruits showing insect punctures on the surface. (*Ibid.*, 17 luglio 1939, n. 165, pp. 3238-3241).

*** A Ministerial Decree of July 19, 1939 establishes the regulations to be observed in regard to the import from abroad, as an exceptional measure, of potatoes intended solely for planting in the 1939-40 season.

The import of tubers from crops attacked by virus diseases or from localities contaminated by *Doryphora* [*Leptinotarsa*] *decemlineata*, *Synchytrium endobioticum*, *Phthorimaea operculella*, *Heterodera rostockiensis*, *Epitrix cucumeris* or by other pests not included in the measures adopted by the inspection services of the producing countries is prohibited. (*Ibid.*, 11 settembre 1939, n. 212, pp. 4342-4344).

Jamaica. — By Law No. 20 of May 22, 1939, entitled 'The Banana (Leaf Spot Control) Loan Law, 1939', the Governor is authorized to raise by the issue of a loan either at one time or by instalments as may be convenient the sum of two hundred thousand pounds sterling and such further sums as may be necessary to defray the expenses of issue.

The moneys borrowed under this Law shall be appropriated and applied for the purchase, on the authority of the Banana Leaf Spot Control Board, of equipment, materials and appliances for the treatment of Cercospora leaf spot [*Cercospora musae*], and the necessary expenses incidental thereto. (*Jamaica Gazette Supplement*, 22nd June, 1939, Vol. LXII, No. 14, pp. 369-372).

Kenya (Colony and Protectorate of). — By Government Notice No. 468 of June 19, 1939, the Schedule to Government Notice No. 688 of September 2, 1937, as amended by Government Notice No. 851 of November 21, 1938 [see this *Bulletin*, 1939, No. 4, p. 86], is amended by adding at the end thereof the following:— Potatoes. (*Colony and Protectorate of Kenya. Official Gazette Supplement. Kenya Proclamations, Rules and Regulations, No. 25: Supplement No. 26*, Nairobi, June 27, 1939, Vol. XLI, No. 29, p. 352).

Morocco (French Zone of). — An Order of July 6, 1939 authorizes the destruction of rabbits, which are causing heavy damage to plantations in some parts of the Rabat region and Port Lyautey territory. (*Bulletin Officiel*, Rabat, 21 juillet 1939, XXVIII[e] année, n° 1395, p. 1075).

*** An Order of July 24, 1939 proposes an enquiry with regard to the establishment at the Port Lyautey civil control post of a syndical association for the control of plant pests, to be called the Port Lyautey Association. (*Ibid.*, 11 août 1939, n° 1398, p. 1206-1207).

*** An Order of July 26, 1939 proposes an enquiry with regard to the establishment at the Srarhna Zemrane civil control post of a syndical association for the control of plant pests, to be called the Tamelelt Association. (*Ibid.*, p. 1207).

Mexico. — As *Cercospora musae*, cause of Sigatoka disease, locally called ' chamusco ', has been reported in the regions of Tabasco-Chiapas, South Chiapas, river basins of the Coatzacoalcos and Tonala, the Papaloapam, Tesechoacán and San Juan, and the Tecolutla and Nautla, a Decree was passed on February 21, 1939 with a view to regulating the control of this banana disease. (*Diario Oficial*, México, 25 de julio de 1939, tomo CXV, núm. 21, págs. [1] a 4).

*** By ' Acuerdo ' of June 29, 1939, district Committees for plant protection work have been instituted and their organization established. The said Committees will be required, *inter alia*, to prevent and control, as effectively as possible, pest and disease attack on crops. (*Ibid.*, 28 de julio de 1939, núm. 24, págs. 6 a 8).

New Zealand. — By Special Order, made by the Waitaki County Council on April 28, 1939 and published by the Minister of Agriculture, fennel (*Foeniculum vulgare*) and hemlock (*Conium maculatum*) have been declared to be noxious weeds within the County of Waitaki. (*The New Zealand Gazette*, Wellington, May 11, 1939, Numb. 32, p. 1459).

Southern Rhodesia. — Government Notice No. 207 of May 12, 1939 amends the regulations referring to imported fruit infested by codling moth [*Cydia pomonella*] published in Government Notice No. 611 of 1938 [see this *Bulletin*, 1939, No. 5, p. 113] by the deletion therefrom of the following words and comma:—

' rejected, and re-consigned to the country of origin at the expense of the consignor or consignee or '. (*Colony of Southern Rhodesia Government Gazette*, Salisbury, 19 May, 1939, Vol. XVII, No. 20, p. 503).

Switzerland. — By Ordinance of the Federal Department of Economic Affairs, dated June 12, 1939, the certificate of origin specified in Article 1 of the Federal Council Decree of April 14, 1939 [see this *Bulletin*, 1938, No. 8, p. 176] is only required in the case of potato wart disease [*Sinchytrium endobioticum*], and only for consignments of potatoes from Belgium, Denmark, Estonia, France, Great Britain and Ireland, the Netherlands, Poland, Sweden and the German Reich, with the Protectorate of Moravia and Bohemia.

Until further notice, the certificate of origin is no longer necessary in regard to the Colorado beetle [*Leptinotarsa decemlineata*]. The Department of Agriculture, however, has the authority to request a compulsory certificate for consignments of potatoes or other plants from countries where the Colorado beetle has appeared.

A certificate of origin is not required for small scale potato imports on the frontier. If wart disease appears in the districts on the frontier, the customs offices are requested to report immediately to the Department of Agriculture of the Federal Department of Economic Affairs at Berne. A sample copy of the certificate of origin required for potatoes is appended. (*Recueil des Lois fédérales*, Berne, 14 juin 1939, nº 22, p. 557-558).

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Prof. UGO PAPI, *Segretario generale dell'Istituto, Direttore responsabile.*

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